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JUDGING SHEEP AS A SUBJECT OF INSTRUCTION IN SECONDARY SCHOOLS.[1]

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INTRODUCTION.

Many rural districts of the United States are not awake to the opportunities connected with sheep husbandry. In sections where sheep form an important part of the farm live stock the possibilities of keeping the boy on the farm are increased by allowing him the care of a few sheep on his own account. Much can be done toward arousing an interest among the farmers of the community and an enthusiasm on the part of the young people by teaching the subject properly in the schools. Lessons on types and breeds of sheep furnish a suitable introduction to a study of wool and mutton production. If, in these lessons, an abundance of illustrative material is used, and they are accompanied by practice in judging, interest will be aroused in the lessons to follow. Students who may have little interest in ordinary sheep often become enthusiastic when made acquainted with the results and possibilities of good breeding. Although it will not be possible in the time available in a secondary course to train expert judges, a good start may be made if the work is directed right. The instructor should aim to fix proper ideals in the minds of the students, to develop their powers of observation, and to arouse such interest that the students will continue the work of their own accord.

[1] Prepared under the direction of C. H. Lane, Chief Specialist in Agricultural Education, with the aid of the Bureau of Animal Industry.

Note.—This bulletin is intended for the use of teachers of secondary agriculture.

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CLASSROOM INSTRUCTION.

Use of illustrative material.—Before students begin practice in judging an effort should be made to fix in their minds an ideal of the type (fig. 1) or breed which is being considered. Nothing else in this work has value equal to living specimens which approach perfection. The teacher should make a survey of the farms surrounding his school to learn where the best animals are kept. In visiting these farms the class may study methods of breeding and

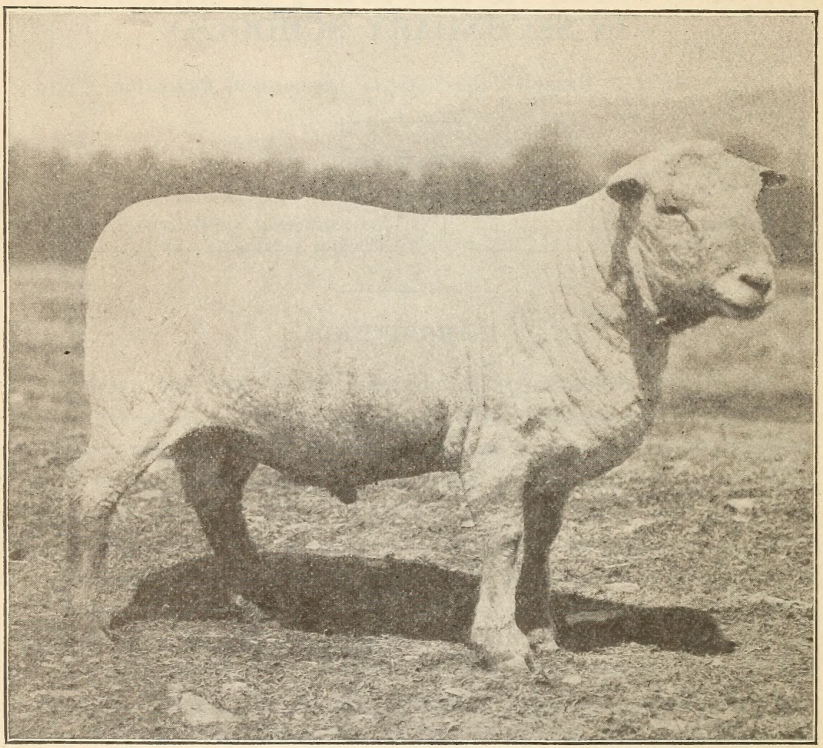

FIG. 1.—A good mutton type.

management as well as breeds. In some cases it may be most convenient to have the animals brought to the school. It will not be possible to study living specimens of all the breeds, neither will it always be convenient to have lessons with the animals present. Fortunately there are many pictures of prize-winning sheep which the teacher may use. If files are not kept of the leading live-stock journals, clippings should be made of all good pictures and these prints mounted upon cards for classroom use. Such pictures as those shown

in figures 2, 3, and 4 may be enlarged as charts[1] or copied upon the blackboard. A projection lantern with an opaque attachment will enable the teacher to project mounted pictures as well as lantern

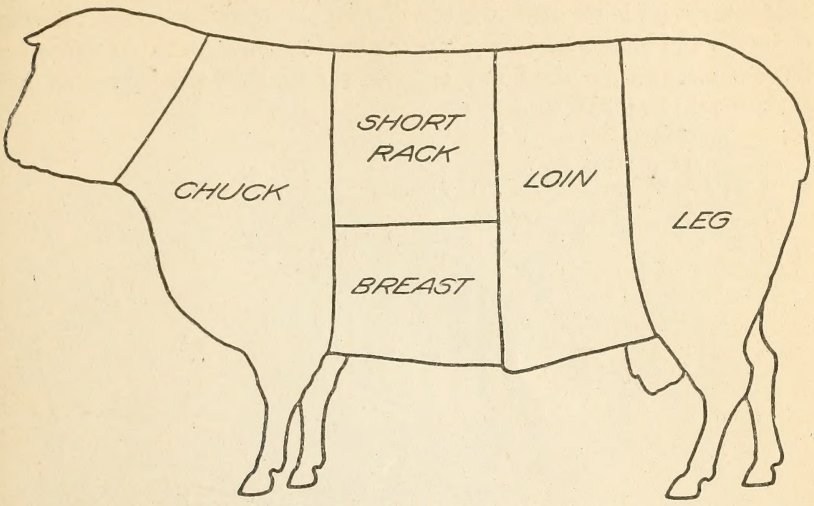

FIG. 2.—Chart for teaching cuts of mutton.

slides upon the screen. A good set of lantern slides is almost indispensable in connection with any study of types and breeds of live stock.[2]

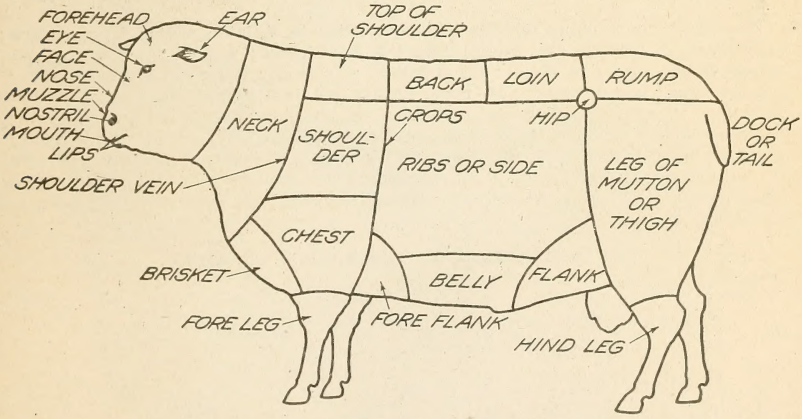

FIG. 3.—Chart for teaching names of parts of a sheep.

Wherever any extensive study is made of wool, a permanent exhibit showing classes and grades of wool will be found very helpful.

[1] Good charts of such pictures may be obtained by tracing the outlines upon ordinary tracing cloth, mounting upon glass as a lantern slide, projecting with the stereopticon, and tracing upon cloth or paper. Light-colored window shades are suitable for this purpose.

[2] Lantern slides illustrating types and breeds of sheep may be obtained from the Division of Agricultural Instruction of the States Relations Service. A list of these and other slides will be mailed upon request.

A study of types and breeds.[1]—Practice in judging should be accompanied by a study of the types and breeds of sheep which are important in the United States. Emphasis should be placed upon type and breeds of local importance. There are a great many classifications for the breeds of sheep, but the breeds common in America may be conveniently grouped on a basis of the kind of wool they produce, as follows (figs. 5, 6, and 7):

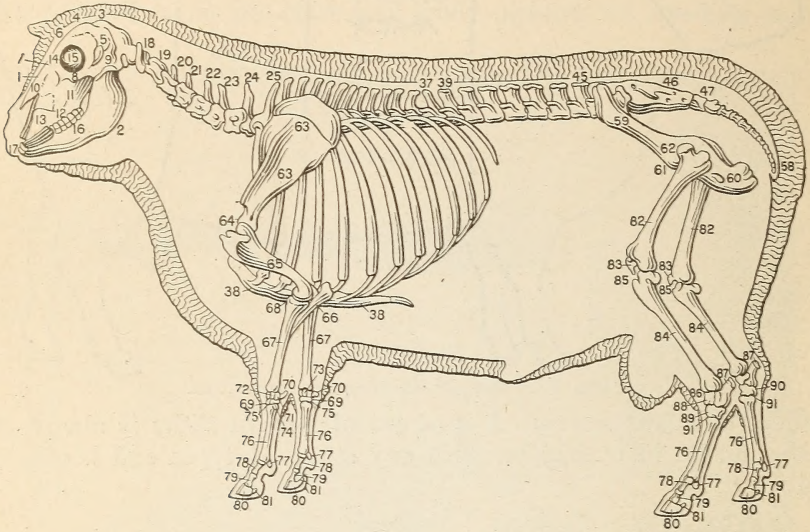

FIG. 4.—Chart for teaching relation of body outline to skeleton parts: 1, upper jaw; 2, lower jaw; 3, parietal; 4, frontal ridge; 5, horn cores; 6, frontal; 7, lachrymal; 8, malar; 9, temporal; 10, nasal; 11, maxillary; 12, upper molars; 13, premaxillary; 14, frontal spine; 15, eye socket; 16, lower molars; 17, incisors; 18–24, cervical vertebrae; 18, atlas; 19, axis; 25–37, dorsal vertebrae; 38, sternum; 39–45, lumbar vertebrae; 46, sacrum; 47–58, caudal vertebrae; 59, ilium; 60, ischium; 61, pubis; 62, hip joint; 63, scapula; 64, shoulder joint; 65, humerus; 66, ulna; 67, radius; 68, elbow joint; 69–75, carpal bones; 76, metacarpal; 77, sesamoid; 78, pastern; 79, coronary; 80, coffin bones; 81, sesamoid; 82, femur; 83, patella; 84, tibia; 85, knee joint; 86, hock joint; 87–91, tarsal bones.

CLASSIFICATION OF THE BREEDS OF SHEEP.

Fine wool:

- American Merino.
- Delaine Merino.
- Rambouillet.

Medium (or middle) wool:

- Southdown.
- Shropshire.
- Hampshire.
- Oxford.
- Dorset Horn
- Suffolk.
- Cheviot.

[1] Farmers' Bulletin 576, Breeds of Sheep for the Farm, should be used in connection with this study.

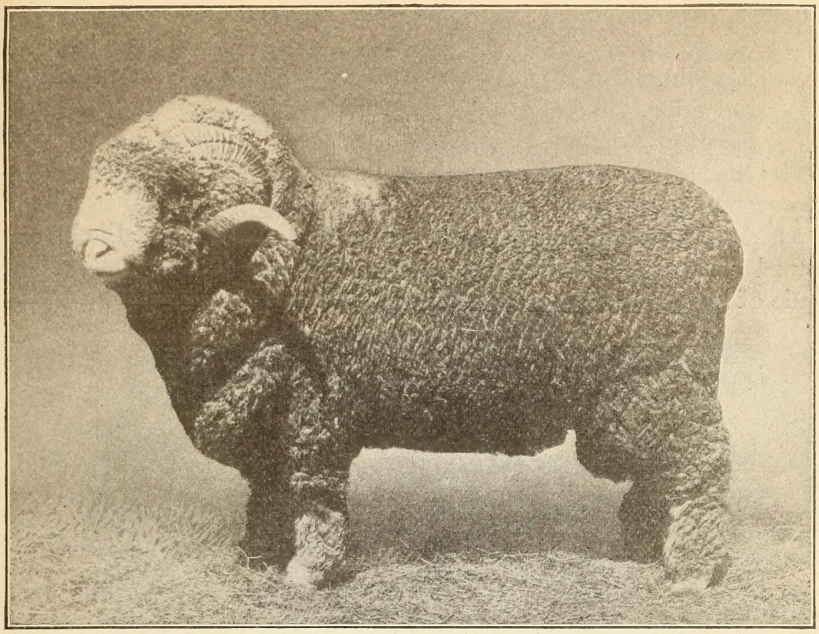

FIG. 5.—A fine wool sheep—Rambouillet.

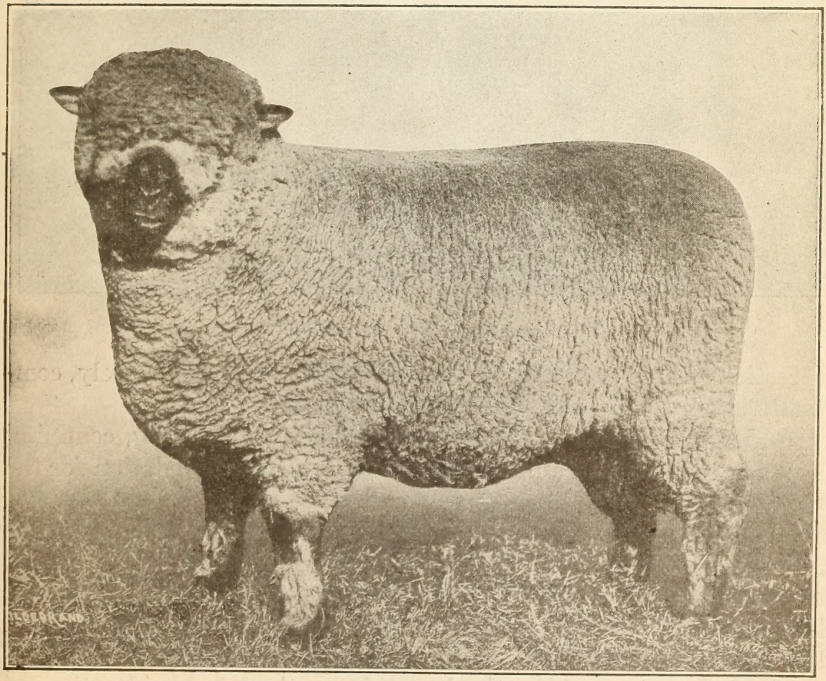

FIG. 6.—A medium wool sheep—Shropshire.

Coarse (or long) wool:
Cotswold.
Lincoln.
Leicester.
Kent, or Romney Marsh.

The first group sometimes is classed as "wool" sheep and the other two groups as "mutton" sheep.

Although the students should learn to recognize most of the breeds named above, a detailed study, with practice in judging, should be made of but one or two of the important breeds in the school district.

FIG. 7.—A long wool sheep—Cotswold.

In sections where one class of sheep is raised almost exclusively, comparatively little time should be given the other classes.

Market classes and grades.—In teaching stock judging, confining the study to pure-bred animals may furnish a good foundation for the training of a show-ring judge but will not give the training needed by many farmers. In the Corn Belt and other territory adjacent to large markets, where feeder sheep are purchased and fattened, it is especially important for the farmer to know the classifications and demands of the market buyers. If the sheep business of the school district is confined largely to the fattening of sheep purchased, instead of sheep reared on the home farm, then a consideration of

market grades and classes should be given first place. In connection with this study a visit to a packing house and its stockyards may be made very profitable if it can be arranged. At such a place there is usually an opportunity to study the methods used in handling the sheep as they arrive, as well as their conversion into mutton ready for the dealer.

If it is not convenient to visit a packing house it may be possible to visit a local meat dealer and there make a study of wholesale and retail cuts of mutton or to visit a farm where sheep and swine are killed for meat. It will be profitable to compare the hog carcass with the mutton carcass to note the difference in the depth of fat covering the body skeleton. Even the comparison of a pork chop with a mutton chop at the school will be worth while in illustrating such a fact.

The classification shown on page 8 is from University of Illinois Agricultural Experiment Station Bulletin 129, Market Classes and Grades of Sheep.

Relation of type to efficiency.—In connection with a visit to a packing house or a dealer to afford the students an opportunity to make a comparative study of sheep carcasses, the sheep should be considered in the classroom as a meat-producing machine and the relation of type to efficiency brought out. It is well to consider the sheep from the standpoint of the packer, as it is the buyer who ultimately will determine its value. Charts, such as figure 2, should be used to show the wholesale and retail cuts of meat, with relative prices marked off on an outline of a sheep. Quality of meat, smoothness in dressing, relative size, and age in connection with the season are factors considered by packers in determining the price to be paid per pound. In considering the sheep from the feeder's point of view, emphasis should be given such points as capacity for feed, efficiency in its use, strength, and vigor.

The sheep should be considered also as a wool-producing animal and the amount and quality of the wool given attention. Though a technical study of wool has not been considered generally a phase of agriculture, yet, now that the importance of wool production is increasing, the farmer engaged in the industry should know more about his product.

The class should give most emphasis to the sheep from the breeder's point of view. The breeder should pay attention to all the points important to the buyer and the feeder and at the same time consider such points as fecundity, strength of constitution, and prepotency. The last-named quality will involve a study of records and pedigrees of breeding animals. Such a study fits more logically with a study of breeding. In taking up sheep as a home project, every encouragement should be given students to get hold of registered animals of good breeding.

Outline of market classes and grades of sheep.

Classes.	Subclasses.	Grades.
Mutton sheep. (Native and western sheep.)	Lambs.	Prime.
		Choice.
		Good.
		Medium.
		Common or culls.
	Yearlings.	Prime.
		Choice.
		Good.
	Wethers.	Prime.
		Choice.
		Good.
		Common.
	Ewes.	Prime.
		Choice.
		Good.
		Medium.
		Common or culls.
	Bucks and stags.	Choice.
		Good.
		Common.
Feeder sheep. (Western sheep.)	Lambs.	Fancy selected.
		Choice.
		Good.
		Medium.
		Common.
	Yearlings.	Choice.
		Good.
		Common.
	Wethers.	Choice.
		Good.
		Medium.
		Common.
	Ewes.	Choice.
		Good.
		Medium.
		Common.
Breeding sheep. (Native and western sheep.)	Ewes.	Fancy selected.
		Choice.
	Bucks.	Good.
		Common.
		(Not graded.)

Miscellaneous:

- Hothouse lambs.
- Export sheep.
- Throw-outs.
- Dead sheep.
- Goats.

The score card.—Before the score card is taken up the teacher should be sure that every student knows the terms used in judging and the names of the parts of a sheep. A diagram of a sheep may be placed on the blackboard with the names of parts omitted and the students required to supply them. In considering the score card in the classroom, the students should understand that it is a brief detailed description of a perfect animal designed to aid them in establishing an ideal in their minds. There are two classes of score cards: (1) Those for classes or types, such as mutton sheep, fine-wool sheep, etc.; and (2) breed score cards, which usually are supplied as standards of perfection by the various breed associations. It should be borne in mind that all score cards are arbitrary in their assignment of values. As there will always be a difference of opinion upon relative values of points and upon forms of grouping, variation in score cards is likely to continue. A use of the score card should aid the students in making a systematic examination of the animal, giving attention to details, and should give them a sense of relative values in judging. Many of the State colleges and departments of agriculture furnish cards for use in school work. The following score card is from the Agricultural Experiment Station of Purdue University:

Score card.

MUTTON SHEEP—FAT.

Scale of points.	Standard.	Student's score.	Corrected score.
1. *Age*			
General appearance—38 per cent:			
2. *Weight*, score according to age	8		
3. *Form*, long, level, deep, broad, low set, stylish	10		
4. *Quality*, clean bone; silky hair; fine, pink skin; light in offal, yielding high percentage of meat	10		
5. *Condition*, deep even covering of firm flesh, especially in regions of valuable cuts. Points indicating ripeness are thick dock, back thickly covered with flesh, thick neck, full purse, full flank, plump breast	10		
Head and neck—7 per cent:			
6. *Muzzle*, fine; mouth large; lips thin; nostrils large and open	1		
7. *Eyes*, large, clear, placid	1		
8. *Face*, short; features clean-cut	1		
9. *Forehead*, broad, full	1		
10. *Ears*, fine, alert	1		
11. *Neck*, thick, short, free from folds	2		
Forequarters—7 per cent:			
12. *Shoulders*, covered with flesh, compact on top, snug	5		
13. *Brisket*, neat, proportionate; breast wide	1		
14. *Legs*, straight, short, wide apart, strong; forearm full; shank smooth, fine	1		
Body—20 per cent:			
15. *Chest*, wide, deep, full	4		
16. *Ribs*, well sprung, long, close	4		
17. *Back*, broad, straight, long, thickly fleshed	6		
18. *Loin*, thick, broad, long	6		
Hindquarters—16 per cent:			
19. *Hips*, far apart, level, smooth	2		
20. *Rump*, long, level, wide to tail-head	4		
21. *Thighs*, full, deep, wide	4		
22. *Twist*, plump, deep	5		
23. *Legs*, straight, short, strong; shank fine, smooth	1		
Wool—12 per cent:			
24. *Quantity*, long, dense, even	4		
25. *Quality*, fine, pure; crimp close, regular, even	4		
26. Condition, bright, sound, clean, soft, light	4		
Total	100		

DESCRIPTION OF MUTTON SHEEP.

GENERAL APPEARANCE.

Weight.—Weight always should be considered in connection with age in market sheep and with sex in breeding animals. Sheep 1 year old and under are considered lambs on the market. Lambs are desirable as butcher stock, because they are in greatest demand by the consumer and are most profitable to the producer if he is raising sheep only for mutton production. Weight is influenced by breed and degree of fatness as well as by age. Although plenty of weight is desired, there is objection to great weight because it is likely to be associated with coarseness and a low dressing percentage and give cuts too large to suit the demands of the retail trade. Lambs weighing from 70 to 80 pounds are in greatest demand. Mature wethers should weigh over 95 pounds.

Form.—The point of view of the butcher should be kept in mind in considering the form of a mutton steak. As the most valuable cuts of meat are on the hind quarters and loin, the butcher requires a heavy leg of mutton and a broad back with a deep, full loin. In order to secure this development in the hind quarters there must be a corresponding development in other parts of the body. The general form, then, should be smooth and even, a large frame without heavy bones giving a plump appearance. Low-set, broad forms generally have a special development of loin and leg and dress out with a relatively small percentage of waste, hence are most desired by the butchers. A full, smooth outline is an indication of flesh which is thick and even. Long legs, drooping rump, flat ribs, and narrow chest with open shoulders, giving a general angular and rough appearance, indicate a relatively large amount of waste and cheaper cuts in proportion to valuable meat.

Quality.—Quality is an evidence of refinement as opposed to coarseness. Usually it is associated with good breeding. Quality is important in the mutton sheep because it is associated also with ability to fatten rapidly, and because with sheep of good quality the percentage of waste is lower than with sheep of inferior quality. Good quality is indicated by a head and ears of medium size which appear lean and clean cut; fine, dense bone of medium size; mellow skin, pink in color; soft, silky hair on face and legs and those portions of the ears not covered by wool. Indications of a lack of quality are a general coarseness as shown by a large, rough head; coarse, large ears; a large, open frame, with coarse bone and rough joints; a thick, wrinkly skin covered with heavy, greasy wool, or a coat of wool that is harsh and coarse, and containing more or less kemp.

Condition.—The term "condition" or "finish" when used in connection with mutton sheep refers to the degree of fatness. Fat animals are preferred by the butcher because they dress a higher percentage of edible meat than do thin animals; their carcasses present a better appearance; they lose less weight in refrigeration and cooking; they possess better curing and keeping qualities; and the edible quality of the meat is improved when a considerable amount of fat is distributed throughout the lean. A good mutton sheep will have a smooth finish; that is, the fat will not be in bunches, but have an even distribution over the body.

HEAD AND NECK.

Muzzle.—A large muzzle, with open nostrils, and lips strong, though thin, indicates thrift and a good capacity for food.

Eyes.—Eyes which are bright, full, and placid indicate health and a quiet disposition.

Face.—A broad head and a short face with clean-cut features denote quality and breeding character.

Forehead.—A forehead broad and full is an indication of intelligence. Width of forehead is also correlated with width of muzzle, indicating a good feeder, which may mean much in handling the sheep on farm or range.

Ears.—Alert ears are an indication of an active disposition. To indicate quality they should be of fine texture, of medium size, and covered with fine, soft hair where not covered by wool.

Neck.—Although the neck is not worth much as meat, it should be short and thick to correlate with other parts of the body.

FORE QUARTERS.

Shoulders.—The shoulders should have an even covering of flesh and should be compact on top and filled out well in the crops and shoulder vein to give a smooth finish.

Brisket.—A wide, full breast is an indication of health and vigor. The brisket should project forward, but it should be neat and in proportion to the chest.

Legs.—They should be short and straight and set wide apart, having a broad arm, well fleshed, and showing as little waste as possible.

BODY.

Chest.—A deep, full chest with a large heart girth is an indication of a strong constitution, as it means plenty of room for heart and lungs. Narrow-chested sheep are likely to lack thickness of flesh and to be in poor condition generally.

Ribs.—Well-sprung ribs not only make room for the vital organs but also give ample space for the laying on of flesh.

Back.—The spinal column should be well hidden with a thick covering of firm, smooth flesh. The back should be moderately short and straight, showing strength.

Loin.—In keeping with a strong back and well-sprung ribs, the loin should be short, broad, and thick to give a good connection between the thigh, or leg of mutton, and the back, and at the same time furnish a large amount of relatively high-priced meat.

HIND QUARTERS.

Hips.—The hips should not stand out prominently. They should stand far apart and both should be on the same level.

Rump.—The rump should show a good length and a good width carried out well to the tail head. The rump should not droop toward either the tail or the thighs.

Thighs.—As the leg of mutton is the most valuable cut of meat, it is very important that the thighs should be deep and wide and full to the point of being plump.

Twist.—The leg of mutton should be not only plump and full on the outside but also in between the legs the twist should be filled well with flesh down to the hock, causing the legs to stand well apart.

Legs.—Mutton sheep should not have a leggy appearance, as long legs, with a lack of development in muscle, indicate a lack of constitution as well as a large proportion of waste in the carcass. Shortness of leg is associated with strength and smoothness, and fineness of shank is associated with quality.

WOOL.

Quantity.—The factors which determine the amount of wool on sheep are its length and density and the uniformity in both over all parts of the body.

From a commercial point of view wools may be classified as short-stapled, or clothing wools, which are used in the manufacture of woolen goods; and long-stapled, or combing wools, which are used in the making of worsted goods. A fleece of long wool will give greater protection to a sheep in a cold country.

Density of the fleece refers to the closeness of fibers; it is determined with exactness by counting the number of fibers to a square inch. A dense fleece means not only more weight but it means also more protection for the sheep. To insure a heavy fleece the wool must be of fairly uniform length and density throughout the body.

Quality.—Although the highest quality and the greatest quantity can not be expected to go together both should be considered. For

goods of fine grade the wool should be fine and soft, with a close, regular crimp. The term "crimp" is applied to the waves in the staple. Fineness of crimp is associated with fine quality. There should be uniformity of quality and texture.

Condition.—Condition with reference to the fleece pertains to its brightness and healthy appearance. The wool should be free from dead fibers and all foreign matter such as dirt and burs. The condition of the wool is determined to a great extent by the health of the sheep. Both the health of the animal and the condition of its fleece are indicated by the amount and character of the yolk, or oily secretion of the wool. Although too much yolk is not desired there should be sufficient to prevent any harsh, dry appearance or feeling.

FEEDER SHEEP.

Capacity v. condition.—It should be obvious that the condition of a sheep will determine whether it shall be classified as a market or fat sheep or a feeder. All the points given in connection with the description of mutton sheep apply to feeders except that instead of looking for market condition, or finish, one pays more attention to capacity for food and ability to use it efficiently in the production of mutton. Experiments have shown that sheep which have been bred toward the type described under mutton sheep make greater gains for the amount of food eaten than do those of inferior breeding.

Constitution and health.—Feeder sheep not only should have a capacity for feed as shown by a well-developed barrel, but they also should give evidence of a strong constitution by having a wide, deep chest with ribs well sprung, making plenty of room for heart and lungs. Feeder sheep should be young and have their teeth in good shape. They can not use food efficiently if they have any form of diseases or if they are afflicted with lice or mites.

WOOL SHEEP.

Although few sheep are bred to-day for their wool alone the relative value and amount of the wool upon the fine-wooled breeds in relation to their size and value in mutton production is responsible for their being considered as a wool type. In score cards for this type usually 45 points are given for wool, whereas in the score for mutton sheep 12 points are given for wool. While in the score for wool sheep the greater emphasis on wool is at the expense of mutton qualities, the tendency at present is to pay more attention to the meat-producing qualities of the fine-wooled breeds.

BREEDING SHEEP.

Breed type.—While all breeds have the general form and characters of the type in which they are classed, all pure-bred sheep possess certain distinguishing features which are inherent in the breed and which receive the attention of breeders. These breed characters may have little value in themselves, yet they are a mark of breeding and give assurance that the animals will breed true to type. Included in such breed characteristics are such points as size, color markings, presence or absence of horns, and peculiarity of shape. These differences make it essential for the different breeds to have different score cards or standards of excellence which give consideration to these points. If one is selecting pure-bred sheep for breeding purposes, he must know the breed type as represented by the standards of excellence for the breed.[1]

Sex character.—Whether one is breeding pure-bred sheep or is engaged in grading up a common flock, in the selection of breeding stock he should consider the qualities the market demands for wool and mutton. In addition to the application of market and breed standards, stock intended for breeding should be considered from the point of view of prepotency in transmitting their good features and prolificacy in reproduction. These qualities are indicated by what is known as sex character.

The ewe.—To be a long-lived, regular, and prepotent breeder the ewe must have a strong constitution and show a strong maternal nature and present a feminine appearance. The ewe should have finer features about the head and a more slender neck than the ram. She should have plenty of room for the growth of the developing fetus. To provide well for early maturing lambs, she should give an abundance of milk. Breeding ewes should never be excessively fat, as they are so often in the show ring.

The ram.—The ram should be pure bred and show breed character and quality in strong form, because it is largely through him that improvement is secured for the flock. To be prepotent, the ram also must show a good deal of sex character; that is, there should be no doubt at first glance that he is a ram. He should have greater size than the ewe and a decidedly masculine appearance, indicated by a general burliness of the head, with a thickness of neck giving a suggestion of massiveness. He should have every indication of boldness, vim, and vigor as denoted by a brisk movement and a bold, energetic look through a bright, clear eye. A breeding ram should not be excessively fat, yet he should at all times be kept in good condition.

[1] Score cards for the leading breeds may be obtained from the secretaries of the breed associations listed in Farmers' Bulletin 576, Breeds of Sheep for the Farm.

PRACTICE JUDGING.

Aims.—The classroom instruction is but preliminary to the more important phase of the subject—practice with the sheep. Although the instructor may agree that better results may be obtained by studying the sheep than by studying about them in books, it is well to have in mind very definite aims in the practical work and have a definite plan of procedure. The chief purposes in giving practice are: (1) To make application of classroom instruction, (2) to gain concrete experience and observation upon which to base further discussion, and (3) to gain skill in observation and judgment.

Preparing for a judging trip.—As a rule, secondary schools must depend upon neighboring farms for stock-judging material. The teacher should know the live stock in the neighborhood of the school, that he may select animals suitable to his purposes. He should plan each trip with a definite purpose in view and know what he will have to work with. He should secure the consent of the owner and make arrangement to have the sheep in suitable inclosures so that no time will be lost. Wet, muddy barnyards should be avoided, and if there is danger of unfavorable weather, provision should be made for working under cover. With all such preparations made in advance, the class will need at least a double period for effective work in judging if the students have to go any great distance from the school. The teacher should be familiar with the animals he intends to use. In the case of comparative judging it is especially important that the teacher should be well acquainted with the animals and their relative merits. To aid the students in establishing high ideals, it is well at first to select animals which approach perfection.

Use of the score card.—The first practice judging should involve the use of the score card for a general type. It is assumed that in the classroom the students will become familiar with the card and the naming of parts. After the students have been shown how to handle and examine the animal they may make individual scores. Each student should work by himself. Conversation and comparison of scores should be avoided while the work is being done. The teacher should be able to make a score of the animal in much less time than the students and have the remainder of the time to supervise their work. Each student should make an estimate of the weight of the animal, to be checked by the use of scales if convenient. The student should have well fixed in his mind an ideal mutton sheep or the ideal of the type to be judged. The card will give the score for perfection in the various points; the student will enter a score which represents the points which he judges the animal to be worth. The sum of these points gives the score of the animal. It should be remembered that the use of the card is chiefly for the purpose of

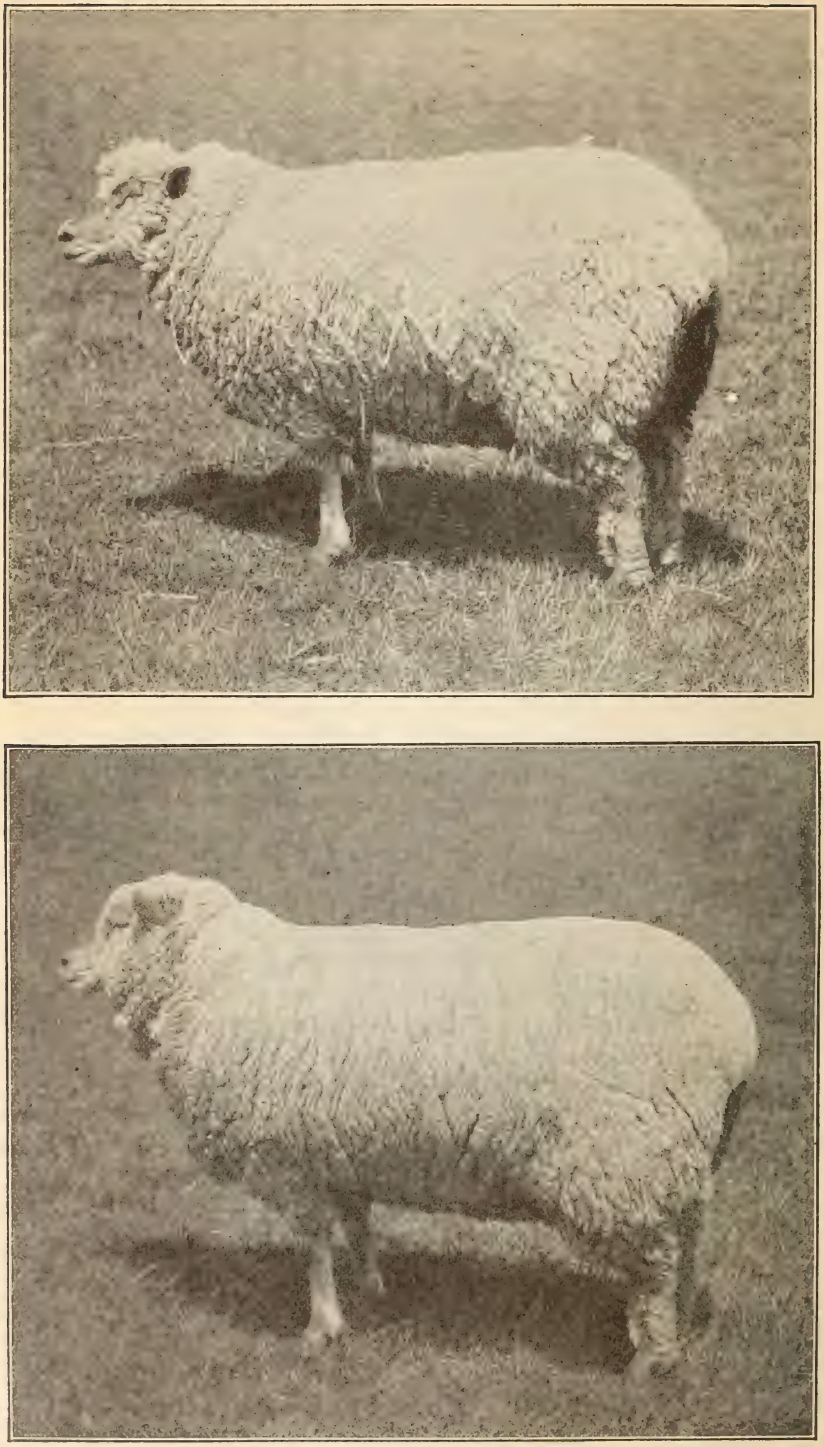

FIG. 8.—Sheep before trimming (above); after trimming (below).

training the student in observation, hence no details should be overlooked. The value of the score card in judging animals depends largely upon the care with which it is used. The following percentages are suggested as a basis for scoring: 1.0, perfect; 0.9, very slight defect; 0.8, slight defect; 0.7, defective; 0.6, marked defect; and 0.5, poor. The number of points given for any particular part of the animal should be multiplied by the percentage rating given that point in the mind of the student. For example, loin is given six points and the animal examined is found to be defective. Six times 0.7 equals 4.2, which represents the score for the loin. In this manner the various parts of the body may be given a proportional score.

FIG. 9.—Dragging the sheep. The wrong way to move a sheep.

How to handle sheep.—Because of the covering of wool the hand must be used freely in judging sheep. The use of the hand is especially important with fat sheep trimmed for the showroom (fig. 8). For this reason the teacher should select for judging sheep which are accustomed to being handled. The students should be cautioned not to handle the sheep roughly by grasping the wool (fig. 9), but to grasp the skin under the throat carefully with one hand and with the other to press at the tail head to move it to the position desired (fig. 10). In order not to disturb the wool and injure the sensitive skin,

the fingers should be held together and the hand kept flat in parting the wool to note condition of wool and skin. With beginning students an excellent plan is to use a shorn sheep in order that they may get correct impressions of body form. Although the diagram on page 4 (fig. 4) will aid in giving an idea of the outline of the sheep in fleece to that of the shorn animal, it will not have value equal to a comparison of a sheep in full fleece with one that has been shorn (fig. 11).

FIG. 10.—The right way to move a sheep.

If the students have opportunity to work with sheep fitted for the show ring, they may profit also by a comparison of a sheep which has been trimmed with one which has not.

Method of examination.—In using the score card the students should have a systematic, definite mode of procedure. The first observations will be of necessity general ones, to be followed by a more

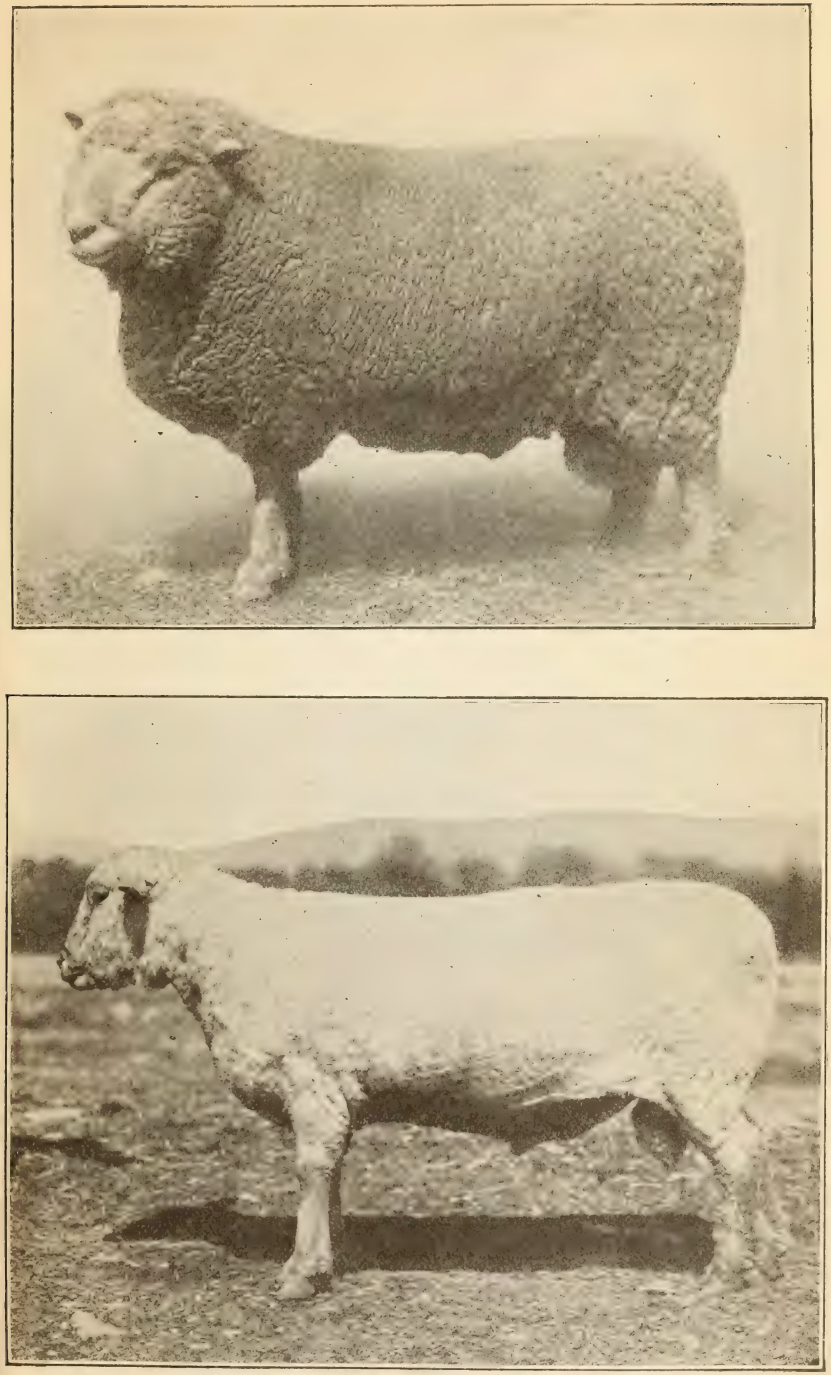

FIG. 11.—Sheep before shearing (above); after shearing (below).

FIG. 12.—Noting breed character and general conformation from a distance.

FIG. 13.—Noting the flesh covering of the shoulder vein.

detailed examination. The importance of first impressions should be emphasized. To note the general appearance of a sheep the students should not get too close. They will get a better impression of the animal as a whole from a distance of at least 10 feet (fig. 12). From this distance the general form of the animal may be noted. After the general form has been noted the legs and face may be examined as to cleanness of bone and the nature of the hair as an indication of quality. Scoring as to condition well may be left until the parts involved have been examined more in detail. The

FIG. 14.—Noting the depth of chest.

more detailed examination then may proceed, beginning with the head and continuing over the whole body. After the age has been estimated as directed below, while holding the sheep by the throat with one hand, the other hand may aid the eye in determining if the head is of the proper shape with good width of forehead, sound eyes, and no appearance of horns in breeds supposed to be hornless. If the sheep has horns they should spring clear from the head. The student should next feel the fullness of the neck, noting its length and the manner in which it meets the shoulder at the shoulder vein and note

the fullness of the shoulder vein. Next observe the shoulder, noting the fleshy covering on the top and along the sides (fig. 13), and then pass down to the brisket, noting its width, and then gain an idea of the depth and width of chest by placing one hand on the floor of the chest and the other on the top of the shoulders (fig. 14). Passing back of the shoulders, note the width in this region, heart girth (fig. 15), and the manner in which the ribs are sprung. Then with one hand follow the line back of the shoulder to the tail head, noting the straightness

FIG. 15.—Noting the capacity of heart girth.

and coupling of the back indicating its strength, also its width and the depth, evenness, and firmness of the flesh covering. Special attention should be given the width of the loin and the depth and quality of its covering (fig. 16). Before passing to the hindquarters the general capacity of the middle should be noted, attention being given to the flesh covering. Note width of hips and the length, fullness, and width of rump (fig. 17). Then with both hands (fig. 18) examine the leg of mutton, carefully noting its size, fullness, thickness, and firmness. With one hand between the legs and the other at the tail head note the depth and breadth of the twist (fig. 19).

In examining the fleece to note its quantity, quality, and condition it should be opened first just above the point of the shoulder (fig. 20), as in this region the best wool is to be found. The thigh (fig. 21) should be examined next, as upon this region grows the poorest and coarsest of the fleece. As the belly is often covered but lightly it should be examined also.

Estimating the age of sheep.—In addition to the sets of molar teeth at the back of both upper and lower jaws the sheep has a set

FIG. 16.—Noting width at loin.

of eight incisors on the lower jaw which work against a tough fibrous pad on the upper jaw as in the case of the cow. The age of a sheep may be estimated by the appearance of these incisors up to the time it is four or five years old. By the time the sheep is four weeks old it has eight temporary incisors, or milk teeth. When the sheep is slightly over one year old the central pair of incisors is replaced by permanent teeth which are broader and wider than the temporary ones. When the sheep is two years old the next pair is replaced; the third paid when the sheep is nearly three years old; and the fourth or corner pair when the sheep is between four and five years old, hence a

full set of permanent incisors will indicate that the sheep is at least four years old. If the sheep are kept in high condition, as show sheep often are, the process of replacing the milk teeth with the permanent ones will be hastened; on the contrary, a lack of proper feed will retard the process. Although it is not possible to tell the age of sheep by the teeth with accuracy after they have a full set, it may be determined roughly by the condition of the teeth. As the sheep gets

FIG. 17.—Noting width of rump.

older the teeth are worn down. As the teeth may become broken and lost, thus affecting the ability of the sheep to feed, all older sheep should be examined to note if the teeth are in working condition.

In examining the mouths of sheep one should be patient and not be rough in the exertion of force. With one hand holding the head against the thigh to steady it, the lips should be parted with the first two fingers of the other hand (fig. 22). If this is done quietly and gently, there will be little difficulty in exposing the teeth.

Comparative judging.—(Fig. 23.) Repeated practice with the score card should be but preliminary to the method used in the show ring, that of comparison and placing according to merit. The student who has used the score card carefully with a number of sheep should be prepared to take in the general conformation and detect the details which indicate the worth of the animal. In trying out the judgment of the students in comparative judging, it is well to select for the first practice four sheep of marked difference in important characters. As skill is developed animals more nearly equal may be chosen. Each animal should be numbered or lettered and the students given a brief time in which to place them according to their relative merit with respect to such important general characteristics as constitution, market condition, or condition of fleece. After they have placed them according to judgment from one point of view they should then place them with all characteristics considered. Time equal to that given for the final placing should be given for the students for writing their reasons for such placing. As students very often do not know how to state their reasons definitely, the following form filled out is suggested for this exercise:

FIG. 18.—Examining the leg of mutton with both hands.

Name of student: William Smith. Date, February 9, 1917.
Class of animals: Mutton wethers.

Placing: First, C; second, D; third, A; fourth, B.

1. I placed C over D because he approached more nearly the ideal mutton form and shows a smoother covering of flesh, etc.

2. I placed D over A because he shows finer quality and has a heavier fleece of better quality, etc.

3. I placed A over B because he shows a better leg of mutton and has a wider chest and heart girth, indicating a stronger constitution, etc.

FIG. 19.—Noting depth and breadth of twist.

Judging contests.—The contest idea may be used to arouse interest in this work and to develop school spirit. From the students which do the best individual work a team of three to five members is selected to represent the school in judging sheep and other animals at county and State fairs. Although much can be done toward arousing interest in the agricultural work and some good adver-

tising may be secured for the school by a competent team, such a team should not be trained at the expense of neglect to students in the regular work. The work in stock judging should be a means toward the end of training farmers and should not be considered in any sense an end in itself.

Whether the school enters a judging competition or not, the teacher may gain a great deal by taking his class to good fairs and live-

FIG. 20.—Examining the fleece upon the shoulder.

stock exhibitions. Such visits should be definitely planned and supervised to yield the best educational results. Under the direction of the teacher the students should learn much of the various types and breeds and note the methods used by expert judges. Special attention should be given the work of the judges, particularly to the explanations of their placings.

At some of the schools local fairs are held under the direction of the school. Such exhibits not only furnish material for stock judg-

ing, but also should do much to arouse interest on the part of both students and patrons.

Practical applications.—It should be borne in mind that the end to be reached in teaching stock judging in secondary schools is not to train judges for the show ring, but to develop judgment which may be used in selecting sheep for breeding and feeding purposes

FIG. 21.—Examining the fleece upon the thigh.

upon the farm. After practice has been given with the score card and in placing sheep by the comparative method it will be an excellent thing to have the students apply their training as farmers. If flocks of breeding and feeding sheep are accessible each student may be assigned the problem of selecting a stated number of animals best suited to a particular stated purpose. Following a study of market conditions, prices may be assigned to the animals selected. The

judgment of the students then may be compared with that of the owner, the teacher, or some other person more competent. Wherever the students are selecting sheep for their home-project work their training may be applied in a more vital manner, as the success of the student will be involved in a financial way.

FIG. 22.—Estimating the age of a sheep.

Grading wool.—Although a study of wool as a product is not strictly a phrase of judging sheep, it may be made a very helpful adjunct to such work. A practical study of market grades and classes of wool will aid the student in judging wool upon the sheep and develop an appreciation of greater care in handling sheep with

regard to maintaining a better standard of wool. Department Bulletin 206, The Woolgrower and the Wool Trade, may be made a basis for such a study. Samples of wool may be brought from the home farms or from local warehousemen. It may be possible to secure a set of samples showing standard classes and grades from dealers

FIG. 23.—Sheep arranged for comparative judging.

or manufacturers. If such are not obtained, the illustrations of the bulletin, with the descriptive matter, will prove sufficiently helpful to make the work worth while. Each student should be required to classify the samples obtained and give written reasons for his placing independently.

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